

CLAIMS:

1. A life detector adapted to be used to determine whether an organism or part thereof suits a life condition predefined by a set of ranges, each for a physiological parameter and each characterizing said life condition, the detector comprising a
5 sensor unit adapted to sense at least two of said physiological parameters and to generate signals indicative of their values, a processor for receiving and processing said signals to arrive at said values, the processor further being adapted to disregard any value falling outside the range of the respective parameter and to produce a qualitative diagnosis based on values falling within its range, the diagnosis being
10 indicative of whether said organism or part thereof suits said life condition, the detector further comprising indication means adapted to indicate said diagnosis.
2. The life detector according to Claim 1, wherein the range of each of said at least two parameters includes a predefined set of sub-ranges, each characterizing a particular state within said life condition and each having a predefined priority level
15 with respect to said life condition, said processor being further adapted to determine the particular sub-range in which the value of each parameter falls and the state characterized by said sub-range, and to produce a qualitative diagnosis based only on the state having the highest priority level.
3. The life detector according to Claim 1, wherein said detector is adapted to be
20 used by a human operator.
4. The life detector according to Claim 1, wherein said indication means is adapted to indicate said diagnosis to a human operator.
5. The life detector according to Claim 1, wherein said organism is a human or an animal and said life condition is health condition.

6. The life detector according to Claim 5, wherein said at least two parameters are any two of the following: pulse rate, blood oxygen saturation level, and temperature.
7. The life detector according to Claim 6, wherein said detector is adapted to be
5 used by a human operator, said processor and said indication means being adapted to indicate said diagnosis to such human operator who is not a medical professional.
8. The life detector according to Claim 1, wherein said organism is a microorganism, and said life condition is being alive.
9. The life detector according to Claim 8, wherein said at least two parameters
10 are any two of the following: fluorescence, reflected light, gas discharge, temperature, and pulsatile behavior.
10. The life detector according to Claim 1, wherein said organism is of astrobiology type, and said life condition is being alive.
11. The life detector according to Claim 10, wherein said at least two parameters
15 are any two of the following: gas discharge, temperature, and pulsatile behavior.
12. The life detector according to Claim 5, wherein said sensor unit is adapted to sense said physiological parameters by directly contacting the body of said human or animal.
13. The life detector according to Claim 12, wherein said sensor unit comprises
20 an optical sensor.
14. The life detector according to Claim 13, wherein said optical sensor is a reflectance pulse SpO₂ oximeter.
15. The life detector according to Claim 12, wherein said sensor unit comprises an electrocardiograph (ECG).
- 25 16. The life detector according to Claim 1, comprising a rod with said sensor unit attached thereto.
17. The life detector according to Claim 16, wherein said rod is tubular.

18. The life detector according to Claim 16, wherein said rod is adapted to change its length.

19. The life detector according to Claim 16, wherein said rod is adapted to be operatively and reversibly bent.

5 20. The life detector according to Claim 1, wherein said detector is in the form of a hand-held unit.

21. The life detector according to Claim 1, wherein said detector is in the form of a flexible cable with said sensor unit attached to one end of said cable.

10 22. The life detector according to Claim 1, wherein said processor and said indication means are further adapted to indicate said values.

23. The life detector according to Claim 1, wherein said indication means comprises at least one of the following: a visual display, an audio indicator, and a vibration indicator.

15 24. The life detector according to Claim 1, further comprising a communication means adapted to transmit at least said diagnosis to a remote location.

25. The life detector according to Claim 1, wherein said processor and said indication means are united in a single device.

26. The life detector according to Claim 25, wherein said single device comprises a communication means adapted to transmit said diagnosis to a remote location.

20 27. The life detector according to Claim 25, wherein said single device is a programmable cellular phone or a palm-top computer.

28. The life detector according to Claim 25, wherein said single device is a general-purpose programmable device (PD), said sensor unit comprises a standard medical sensor, said life detector further comprises a cable adapter interfacing said
25 programmable device to said medical sensor, and a driver program specifically directed to use with said medical sensor, said cable adapter and said PD is loaded in said PD.

29. The life detector according to Claim 25, wherein said programmable device has remote communication capability.

30. A cable adapter for use with the life detector of Claim 28.

31. The cable adapter of Claim 30, wherein said interfacing includes maintaining
5 correct input and output voltages and scaling of signal data between said PD and said medical sensor.

32. The cable adapter of Claim 31, wherein said interfacing includes providing electric power from said PD to said medical sensor.

33. The life detector according to Claim 1, further having means for determining
10 the location of said organism.

34. The life detector according to Claim 33, wherein said means for determining the location is at least one of the following: a video camera, a thermal camera, a light source.

35. The life detector according to Claim 1, further comprising at least one audio
15 aid of the following: voice microphone, speaker, sound detector, headphones.

36. The life detector according to Claim 1, wherein at least said sensor unit is adapted for prolonged association with said organism while said detector is adapted for repeated or continuous production and indication of said diagnosis, thereby providing monitoring of said life condition.

20 37. The life detector according to Claim 36, wherein at least one of said sensor unit and said indication means is detachable from said detector and adapted for remote communication with said detector so that an operator of the detector could perform said monitoring remotely.

38. The life detector according to Claim 1, further adapted to treat said organism.

25 39. The life detector according to Claim 37, comprising at least one of the following means for treatment: gas supply line, liquid supply line, suction line, power electric line, and mechanical manipulator.

40. The life detector according to Claim 1, wherein said sensor unit comprises a permanent base and at least one changeable sensor module detachably attachable to said base.

41. The life detector according to Claim 40, further comprising at least one
5 changeable treatment module detachably attachable to said base.

42. The life detector according to Claim 41, wherein said base and said changeable modules have identical means for attachment so that said changeable modules are interchangeable among themselves.

43. The life detector according to Claim 42, comprising at least one dummy
10 module which is interchangeable with anyone of said sensor and treatment modules.

44. A method for determining whether an organism or part thereof suits a life condition predefined by a set of ranges, each for a physiological parameter and each characterizing said life condition, including:

- sensing at least two of said parameters of the organism and generating
15 signals indicative of their values;

- receiving and processing said signals to arrive at said values, including disregarding any value falling outside the range of the respective parameter;

- producing a qualitative diagnosis based on any value falling within the range for its parameter, the diagnosis being indicative of whether the organism suits
20 said life condition;

- indicating said diagnosis.

45. The method according to Claim 44, wherein the range of each of said at least two parameters includes a predefined set of sub-ranges, each characterizing a particular state within said health condition and each having a predefined priority
25 level with respect to said condition, said processing further including:

- determining the particular sub-range in which the value of each parameter falls, and the state characterized by said sub-range;

- producing said qualitative diagnosis based only on the state having the highest priority level.

46. A cable adapter for use with a general-purpose programmable device (PD) having indication means, and a standard medical sensor, wherein said cable adapter is capable of interfacing said PD to said medical sensor, after a driver program specifically directed to use with said medical sensor, said cable adapter and said PD is loaded into said PD, so that signals generated by said sensor could be processed and suitably presented to an operator by said indication means.
47. The cable adapter of Claim 46, wherein said interfacing includes maintaining correct input and output voltages and scaling of signal data between said PD and said medical sensor.
48. The cable adapter of Claim 46, wherein said interfacing includes providing electric power from said PD to said medical sensor.
49. The cable adapter of Claim 46, wherein said PD has remote communication capabilities and said driver program is adapted to use them so that data associated with said sensor can be transferred to a remote location.
50. The cable adapter of Claim 46, wherein said driver program is capable to work with a plurality of different medical sensors and/or with a plurality of different PDs.
51. A kit including a cable adapter, a standard medical sensor and a data media with driver program, wherein said cable adapter is capable of interfacing a general-purpose programmable device (PD) having indication means to said medical sensor, after said driver program is loaded into said PD, so that signals generated by said sensor could be processed and suitably presented to an operator by said indication means.
52. The kit of Claim 51, wherein said interfacing includes maintaining correct input and output voltages and scaling of signal data between said PD and said medical sensor.

53. The kit of Claim 51, wherein said interfacing includes providing electric power from said PD to said medical sensor.

54. The kit of Claim 51, wherein said PD has remote communication capabilities and said driver program is adapted to use them so that data associated with said
5 sensor can be transferred to a remote location.

55. The kit of Claim 51, wherein said driver program is capable to work with a plurality of different medical sensors and/or with a plurality of different PDs.